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Geneva, 26 March 1990

SECOND UNITED NATIONS CONFERENCE ON THE LEAST DEVELOPED COUNTRIES:

Preparatory process for the Conference

UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION AND THE LEAST DEVELOPED COUNTRIES

Contribution by the United Nations Educational, Scientific and Cultural Organization (UNESCO) */

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SECOND UNITED NATIONS CONFERENCE
ON THE LEAST DEVELOPED COUNTRIES

Paris, September 1990

UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANIZATION

AND

THE LEAST DEVELOPED COUNTRIES

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INTRODUCTION

1. Since the first list of the 25 least developed countries (LDCs) was adopted by the General Assembly at the beginning of the 1970s, the United Nations system has worked hard to encourage the international community to take an interest in those countries and provide them with special support. The holding of the first United Nations Conference on the Least Developed Countries in September 1981 and the adoption at that time of the 'Substantial New Programme of Action for the 1980s for the Least Developed Countries' marked a fresh impetus, the effect of which was first assessed in 1985 by the UNCTAD Intergovernmental Group of the Least Developed Countries. The second United Nations Conference in 1990 should carry out a fuller review and, above all, make recommendations as to priorities and to ways and means of effectively sustaining the impetus of 1981 and of continuing international action on behalf of the least developed countries.

2. The purpose of this document is to describe the situation in the least developed countries and the problems and inadequacies which they are facing in implementing their development policies in the fields of education, science, technology, culture, communication and the social sciences, which fall within Unesco's highly complex mandate. It will review the development of Unesco's work in this area and suggest a few broad directions in which the efforts of the LDCs themselves and the efforts of international co-operation could be channelled. No attempt can be made to cover all the ground, given the extent of the field in question. Instead, we shall try to pick out the most significant features both as regards the analysis of sectoral situations and as regards the lines of action proposed.

3. These remarks must be seen in the general context of the least developed countries in order to bring out both what they have in common and what prevents them from being considered as a homogeneous group.

4. The first thing they have in common is their extremely low rating in terms of three closely interlinked criteria, two of which are economic (per capita gross domestic product and the rate of industrialization) and the third, the literacy rate, comes within the bounds of education and culture. As we know, the literacy rate cannot be isolated and, like the other two criteria, is the product of a whole series of intricate factors such as the overall state of the education system, the state of research, the level of information, the availability of reading material, the level of free cultural creativity, etc. It must be examined together with the general economic situation and the development of that situation. Illiteracy prevents or curbs participation by the population in economic development and illiteracy increases when the resources for thoroughgoing literacy education projects become scarce in the context of a declining economy.

5. In view of the above, it is worth mentioning certain general economic indicators characteristic of the LDCs throughout the 1980s (cf. UNCTAD 1988 Report on the least developed countries) which will throw light on the rather discouraging view of the situation which follows, especially as regards education. The growth rates observed in the LDCs from 1980 to 1986 (2.2 per cent on average) were thus considerably lower than the average rate of 3.6 per cent recorded in the 1970s. This is of particular importance in countries where population growth reached 2.6 per cent. Furthermore, an increase in per capita GDP was recorded for only twelve LDCs during the same period. The GDP continued to fall in seven LDCs and in seventeen of them it was lower than the growth in population. It should be noted, however, that, in a hostile external environment (standstill or decline in the marketing of basic products, burden of debt, lack of international aid, rigidity of certain structural adjustments, etc.) and at a time when many LDCs

were suffering from the effects of natural disasters and some of them from an influx of refugees, even low rates of growth show that the LDCs are potentially capable of overcoming the traditional obstacles which they face if the international community provides them with appropriate support.

6. Although the LDCs share the features associated with the highest levels of world poverty, which, unfortunately, set them apart from the other developing countries, they do not form a group with a common identity. They vary in size and population, in geography (island States, land-locked countries, countries with coastal boundaries, Sahelian countries, humid tropical countries and countries in the monsoon belt, etc.), in their natural resources potential and in what they have achieved through their development policies.

7. There as elsewhere, the struggle for development must take account of and conform to the specific features of each country. As elsewhere, it must be based primarily on the determination and efforts of the country itself. Consequently, although specific poverty levels may in some way alter the very nature of underdevelopment in several LDCs, goals and strategies remain essentially the same as in other Third World countries. The basic difference, perhaps the only one, stems from the vast and urgent needs of the LDCs which are such that massive assistance is required as a matter of priority from the rest of the world, including other developing countries.

8. Unesco's experience in tackling development problems, which has been acquired in carrying out its mandate in the fields of education, science, culture and information, has led the Organization constantly to draw attention to the fundamental point that no critical 'economic' situation can be genuinely, that is to say lastingly, overcome unless the reasons for the situation and its characteristics are seen and taken into consideration as a whole. In other words, if the factors determining the most immediate and obvious aspects of an economic situation at a given point in time are isolated from their context, then any attempts to achieve a full understanding of the situation will necessarily be circumscribed.

9. In the present circumstances, it is absolutely essential to see the general situation prevailing in the LDCs in the context of development. This context, while necessarily including responses to emergency situations which cannot be evaded, must also consider the medium and long-term components which would make it possible to revive the economies on a firmly established base so as to avoid, as far as possible, continuing stagnation or the development of acute crisis situations.

10. Unesco therefore intends to lay emphasis on those components of the 'economic base' and the development process which come directly within the scope of its activities and to whose importance at all stages in the development process the Organization must draw attention in order to ensure that the concept of development prevailing in future does not just take the form of a statement of parameters relating simply to short-term growth and material goods. Unesco's concept is not only based on a philosophy of development which sees people and their self-fulfilment as the aim of the development process but also includes a realistic understanding of that process as one which cannot succeed unless its cultural dimension is taken into consideration. That in turn makes it necessary to take account of the sociological characteristics and the deep traditional foundations of the various peoples, even if they must be transcended and incorporated in the movement of innovation. These views are now widely held, even though some decision-makers still have some difficulty in finding a natural place for them in their schemes.

11. The fields of competence concerned - education, the natural sciences, culture, communication, the social and human sciences and information - each have their own identity but are all 'fundamental', and that circumstance leads on to forms of action which necessarily make their main impact in the medium and long term.

The 'delayed impact' in these fields has too often caused planners and decision-makers in a hurry to minimize, disregard or ignore their key role, favouring areas of intervention in which the impact is supposed to be felt immediately or at least more rapidly. Projects and even whole national development plans have, therefore, in too many cases been built on sand.

12. The effective implementation of genuinely global and integrated development processes is today coming up against the fact that economic, social and cultural circumstances in the least developed countries are being profoundly affected by external factors connected with the evolving economic situation in the world and with the forces dominating it. Disparities at world level and their persistence and aggravation can be seen in particularly acute form in the situation of the least developed countries and in the serious lack of resources available to them for development. While we agree that foreign development aid is generally nothing more than an extra contribution towards achieving the objectives laid down, in the case of the least developed countries it becomes a major factor. The second United Nations Conference on the Least Developed Countries is therefore of particular importance as part of the overall efforts of the international community to establish more equitable relationships at world level and as an opportunity for drawing up programmes which could be of direct benefit to the least developed countries in the 1990s and beyond.

13. Regarding the international assistance required to deal with the situation of the LDCs at present and in the foreseeable future, aside from the fact that the contribution of the developed world must be generous, massive and provided as rapidly as possible, Unesco wishes to draw attention to the leading role which TCDC (Technical co-operation between developing countries) can and should play. The similarity, referred to earlier, of the problems to be tackled by all developing countries provides those of them which have encountered obstacles and overcome them or reached the point of overcoming them, with an opportunity to provide the LDCs with their technical assistance. Naturally, any financial implications of such transfers of experience are, when necessary, a matter for world solidarity.

14. With regard to ways and means, it would be difficult to exaggerate the importance of employing sectoral analysis, when designing operational activities for development, in order to make the best possible use of resources, especially national resources. In a growing number of countries, externally funded projects are decided on and drawn up within a framework of extensive sectoral analysis. This kind of analysis assesses a broad range of possible development policies and programmes concerning education and training, including science and technology education. Sectoral analysis evaluates the effects of the different policies in comparison with the funds needed, the social objectives and the economic development objectives. The structure and functioning of the sector (for example the education and training sector) are analysed as is the sector's contribution to the nation's overall social and economic development. Alternative solutions are worked out and their financial, educational, political and managerial feasibility is assessed. Sector development programmes are drawn up and the investment and recurrent expenditure requirements are established together with their mode of funding. Externally funded projects are a part of such sectoral development programmes. Sectoral analysis recognizes the fact that education (or science and technology) is an integral part of each nation's socio-economic culture and that it does not operate in isolation from other sectors. Foreign partners can make an important contribution to building up national sectoral analysis capability by promoting synergy in resource management. Thus, by helping recipient governments to draw up more appropriate policies and to apply them in a more economical and more suitable way to their particular contexts and also by helping foreign partners to define more clearly the target and priorities for their aid, sectoral analysis opens the way to dialogue and a partnership which can provide the basis for authentic and effective development strategies going beyond the short and even the medium term.

EDUCATION

A. REVIEW OF PRESENT SITUATION IN THE LEAST DEVELOPED COUNTRIES

1. The Substantial New Programme of Action for the least developed countries (LDCs) adopted in 1981 recognized the vital role of education in development viewed as an integrated process in which the social and economic dimensions also had to be taken into account. On the basis, therefore, of facts and figures gathered together with Unesco's help by the Secretary-General of UNCTAD, the SNPA assigned relatively ambitious objectives to the LDCs under the heading of education, central among which was the making of primary education compulsory in these countries by 1990 at the latest. At the same time these countries were called upon to move towards the eradication of illiteracy, pursue the balanced development of secondary education and vocational training and equip themselves with adequate facilities for higher-level education. In all the above efforts, due attention needed to be paid to the educational requirements of women and the rural populations. Today we have to try to assess the extent to which those goals have been achieved.

2. To put that assessment in its exact context, it has to be remembered that during the 1970s, immediately prior to the adoption of the SNPA, most developing countries, including those constituting the present group of 42 LDCs, had already resolutely embarked on the development of education for their people. Against a background of keen motivation on the part both of the teachers and of the children they taught and in spite of shortfalls in public finance and serious and numerous structural deficiencies and obstacles, the institutional foundations necessary for the quantitative expansion and qualitative enhancement of educational systems had in many cases been laid. Admittedly, in these the most disadvantaged of disadvantaged countries, nothing was finished - far from it - but in many places everything or nearly everything was on the way. That is no doubt the explanation for the optimism of those drafting the SNPA in 1981 about what they felt was possible for the decade that was just beginning.

3. It has to be admitted that at the time of writing, the situation in no way lives up to these early hopes. Instead, it would be truer to say that, under the pressure of net economic decline and the resultant financial strain, the progress made during the seventies has been eroded. This erosion has taken various forms that we shall discuss in turn. The first aspect relates to the stagnation and, often, to the downturn in education budgets at the very time that school-age populations were increasing rapidly.

Education costs and financing

4. Whilst not forgetting the relative nature of this indicator, given that these countries have the lowest incomes in the world, it has to be recognized that the trend in the share of public expenditure going to education since the beginning of the 1980s (see Table 1 at the end of this chapter) is unsatisfactory. Against a general background of stagnation, it can be seen that in nine LDCs the share of GNP spent on public education has decreased. Table 2 compares the situation in the LDCs with that in the various main regions of the world and in the developed and developing countries and shows how persistently the LDCs lag behind.

5. The lack of public resources devoted to education is obviously related to the critical economic and financial situation afflicting the LDCs in general. It

is also increasingly clear that education has taken the full impact of the structural adjustment policies introduced as a result of that 'economistic' misunderstanding of the role of human resources in development to which preference is made in the introduction to this document.

6. A point to note in this regard is that, since most LDCs have got poorer over the last decade (negative growth in GNP at constant prices, decrease in per capita private consumption spending, high debt service figure), it seems hardly likely that the private sector - whose growth has admittedly been vigorous - can make up for what the public sector fails to fund. Another question is that of the compatibility of growth in private education with the principle of the democratization of education and equality of opportunity of access and success. Another development which needs to be mentioned is a certain degree of diversification in modes of education, with greater recourse to traditional forms such as Koranic and pagoda schools. The fact that has to be stressed, however, on these aspects as on so many others, is the absence or inadequacy of reliable statistical data.

7. Needless to say, the exiguity of these resources - sometimes, even so, costing the LDCs great sacrifices - has a direct impact on the equipment, supplies and text-books available to the education systems. It would also appear, though it is difficult to get precise data on the subject, that teachers' earnings in the LDCs, representing 90-95 per cent of education costs, have slumped. Many African countries in particular seem to have been forced to reduce teachers' pay considerably.

8. Another cause for concern is to be found in the very distribution of public education spending. The SNPA recommended that the LDCs should pursue a balanced development of the various types and levels of education, including vocational training, in view of the shortage of skilled personnel in these countries. Unfortunately, the little information that there is available points to a downward trend in the relevant percentage of public finance, itself already too low as a whole, so that the objective of balanced development urged by the SNPA is receding rather than coming nearer. (NB: there are, however, a relatively large number of examples of industry making itself responsible for certain types of apprenticeship. In addition, the data on public spending do not always include amounts spent on training by other technical and social ministries).

9. Certainly the following information needs to be analysed bearing in mind the disparities involved, unit costs being very dissimilar from country to country and completely disproportionate in primary, secondary and higher education. As a share of per capita GNP, costs per pupil range from 6 to 39 per cent in the first level, 23 to 176 per cent in the second and from 36 to 251 per cent in higher education.

Enrolment

10. In 1980, 444 million children were attending primary school in the whole of the Third World as compared with 310 million ten years earlier. The countries of sub-Saharan Africa, which include the largest number of LDCs, had, for their part, more than doubled the number enrolled in primary education from 20 to 46 million. This being so, the national primary-education-for-all programmes, although they might have seemed over-ambitious in the timescale targets set for them, did appear to be goals to which the developing countries were irresistibly advancing. By 1980, the gross enrolment rate at primary level for all the developing countries put together had reached 93 per cent.

11. A look at enrolment figures by age groups shows that, in the countries of which the LDC group then consisted, those for the 6-11 age group had doubled between 1960 and 1980, whilst those for the 12-17 and 18-23 groups had gone up 2.4

and five times respectively over the same period. It was thus reasonable to suppose, given this spectacular quantitative growth in a developing world, that educational growth and, in particular, access for all to primary education, was simply a question of time and ongoing investment.

12. In 1989, it is difficult to hold on to the same belief, particularly as regards the LDCs. For one thing the enrolment rate at primary level in these countries, which had surged from 41 per cent in 1970 to 58.9 per cent in 1980, had only gone up a further 1.1 per cent by 1987 (see Table 3). The trend in population growth - though it certainly has to be taken into account - does not alone explain this stagnation. However this may be and although Unesco's most optimistic forecasts point to a primary enrolment rate of 74 per cent by the year 2000, it seems only too clear that the goal of primary education for all will not be achieved by the LDCs until some fairly remote point in the 21st century.

13. A study of enrolment rates for the 6-11 age group also shows stagnation after a period of spectacular expansion. Although here, too, the population explosion is partly responsible, the fact remains that the figures given in Table 3 fail to fulfil the promise of the results of earlier periods.

14. It must not be forgotten, however, that in the LDCs we are not dealing with a homogeneous group of countries. There are wide disparities in the most recent enrolment rates for the 6-11 age group, for example, ranging from 80.1 for Botswana to 9.6 for Somalia. Since 1980, the figure has fallen in sixteen countries, some of them with enrolment rates that were already very low (Mali from 16 to 13.7 per cent and Somalia from 18.6 to 9.7 per cent) and others with promising figures at the start of the period, e.g. Tonga where the ratio was 81.7 per cent in 1980 but down to 73.6 per cent by the late eighties (source: Unesco Office of Statistics, 1989).

15. However, even bearing in mind these dissimilarities within the group, it is still useful to compare the enrolment rate trend in the LDCs from 1980 to 1987 with that of other groups, which are also heterogeneous to varying extents (Table 3).

16. Finally, attention needs to be drawn to the continuing gap between male and female enrolment rates at all three levels of education (see Table 4) and to the persistence of other disparities, too, such as those between rural and urban areas and those affecting what are still marginal groups like the nomads (which make up a large proportion of the population in certain LDCs, including the Sahel countries).

Literacy

17. Several factors - the decline in public spending on education (with no upturn on the horizon), the imbalance in the distribution of these resources offering little hope of appropriate funds being applied to provide the technical education that would supply the vocational skills that are so badly needed, and the stagnation if not decline in enrolment figures during the 1980s - all support the analysts' forecasts of falling trends in enrolment for the developing countries in general and the LDCs in particular. That being so, and considering that all effective action against illiteracy has to be backed by a firmly founded education system and, in particular, a well-established primary school network, the slow progress achieved in most cases in the struggle against illiteracy in most LDCs during the five years between 1980 and 1985 comes as no surprise (see Table 5).

Planning, management and research

18. Finally there are a number of other essential features to be listed in this review of what has happened in the LDCs over the period 1981-1989. The weakness often found in the national bodies responsible for planning, administering and managing education systems, the imbalances observed in the distribution of resources among the various levels (and also as between primary education, literacy work for young people and adults and post-literacy work), the anomalies there are in unit costs, the continuing inequalities between the sexes, between town and country and between different population groups - all these problems are often due to shortcomings in planning, financial management or educational research.

B. MILESTONES IN UNESCO's ACTION ON EDUCATION IN THE LDCs, 1980-1989

19. In the wake of the United Nations Conference on the least developed countries (Paris, 1-14 September 1981) and the adoption of the SNPA, Unesco very quickly (1982) held a meeting of senior officials of the education ministries of 31 LDCs in order to have their opinions and suggestions on their countries' needs and priorities. The priorities that were highlighted as a result of this exercise were the eradication of illiteracy, the linkage of school and out-of-school education, the role of secondary education (especially technical, vocational and agricultural training) and higher education and education in relation to rural development and, lastly, the various aspects of the mobilization of resources and the prospects of international cooperation.

20. There were also other major milestones in Unesco's action in the least developed countries. There was the Conference of Ministers of Education and those Responsible for Economic Planning in African Member States in Harare, 1982, whose proceedings were particularly relevant to the subject of this document since they concerned a continent in which 28 of the present total of 42 LDCs are situated. Indeed, one of the recommendations of the Conference (No. 11) referred explicitly to the SNPA and included a request to all Member States and international institutions to increase their assistance to the least developed African countries. In 1985, the Fifth Regional Conference of Ministers of Education and those Responsible for Economic Planning in Asia and the Pacific also adopted a Resolution (No. 7) concerning the implementation of the Substantial New Programme of Action for the least developed countries and recommended Unesco 'to accelerate the implementation of the SNPA with regard to expansion of education with particular emphasis on universal primary education and removal of illiteracy and conservation and development of the culture of the LDCs of this region, in close cooperation with other UN agencies and by mobilizing necessary support from the international community'. It also called upon 'the donor countries and other developing countries in a position to do so, to extend full cooperation and support in realizing the objectives of the SNPA within the stipulated time'.

21. An interregional meeting of experts from the LDCs on decentralized planning and popular participation in the expansion of education in rural areas was also held in 1985. Among other things, this meeting enabled several national strategies to be examined that had already been tried out and had produced telling results in the adaptation of primary curricula and the training of rural teachers. In 1988, a survey was conducted among the LDCs in order to establish what progress had been made and what difficulties had been encountered in their efforts to implement integrated plans to eradicate illiteracy combining primary education and literacy work for young people and adults. It emerged that such integrated planning continues to meet with certain administrative and other obstacles, but that it is held to be desirable by most of the countries that replied.

22. Successive sessions of the General Conference of Unesco (fourth extraordinary session, 1982 and twenty-second, twenty-third and twenty-fourth ordinary sessions) all stressed the need for priority action for the LDCs. The Regional Programme for the Elimination of Illiteracy in Africa, approved at the twenty-second session, has become operational. It provides participating Member States, including twenty LDCs, with a framework for consultation, agreement and reference for their literacy plans and campaigns, following the recommended strategy with its twofold goal: the general provision of primary education - in order to tackle the problem at its source - and mass literacy work for young people and adults - designed gradually to reduce illiteracy among the population not at school. In the framework of the Network of Educational Innovation for Development in Africa (NEIDA) and the Asia and Pacific Programme of Educational Innovation for Development (APEID), Unesco is promoting research, the distribution of information and studies on teaching methods and the training of educational personnel (particularly for technical and vocational training), whilst taking careful account of the socio-cultural factors and development needs that are specific to the regions and the LDCs taken individually or in sub-groups.

23. One of the ways in which Unesco's concern for the LDCs is reflected is in the distribution of resources earmarked for education projects in the different regions. For every two-year period, 50 per cent or more of the financial resources mobilized go to Africa, which is where the largest number of LDCs are to be found.

24. Many activities specifically intended for the LDCs have been organized during the period. An interregional workshop was held for those responsible for training institutions in the LDCs to teach them how to organize and run educational workshops and how to produce appropriate teaching materials. Two other interregional training workshops were concerned with the various aspects of mobilizing and utilizing internal resources for the expansion of education. An integrated project was launched for the LDCs in the Asia and Pacific region, one of whose objects was to have interdisciplinary teams from countries in this area draw up new plans and programmes of instruction for science teaching and technical and vocational training at primary, intermediate and secondary levels.

25. In December 1989, in the framework of the implementation of the SNPA and the run-up to the second United Nations Conference on the LDCs (1990), a meeting of experts was held on the LDCs' educational progress, needs and priorities. Senior education ministry officials from 33 LDCs took stock of the progress and difficulties these countries had experienced in the expansion of education during the 1980s and identified priorities for the years 1990-1995, the period of Unesco's Third Medium-Term Plan. The meeting focussed more particularly on two specific subjects, firstly the problem of wastage from school and the need to reduce it by a qualitative improvement in basic education, and secondly, ways and means of mobilizing internal and international resources.

26. Other events for which preparations have been made during the decade now closing will be of considerable relevance to the LDCs although their object is of general concern to all developing countries. The first of these is the declaration by the General Assembly of the United Nations in 1987 proclaiming 1990 to be International Literacy Year and making Unesco responsible for its organization. The objectives are to secure more vigorous action by Member States with an illiteracy problem, to make world public opinion more aware of the extent and effects of this scourge, to increase popular participation in literacy work and to strengthen cooperation between Member States and between international governmental and non-governmental organizations in the struggle against illiteracy.

27. Another and by no means the least important purpose of International Literacy Year is that it should serve as a launching ramp for the dynamic and genuinely worldwide implementation of the Plan of Action for the Eradication of Illiteracy

in the Regions of the World by the Year 2000, the principle of which was decided upon at the General Conference of Unesco in 1985 and which was approved by the General Conference at its twenty-fifth session in 1989. It may be noted that, although this Plan of Action is intended to be worldwide, it gives explicit priority to actions by and for the LDCs, in 26 out of 42 of which over half the adult population are illiterate. The Plan points out that in some of these countries, the main indicator of the future literacy rate - the primary enrolment rate - is tending downwards and suggests that throughout the period of implementation of the Plan, those LDCs with a particularly high illiteracy ratio should, if they so request, be afforded priority in cooperation.

28. It is also certain that the LDCs will be at the centre of the concerns of the World Conference on Education for All to be held in Thailand in March 1990, whose object will be to increase awareness of the urgent need to mobilize national and external resources for basic education. Organized jointly by Unesco, Unicef, UNDP and the World Bank and sponsored by a number of industrialized Member States and international financing bodies, this Conference will be asked to adopt a World Declaration on Education for All and a Framework for Action in accordance with this Declaration with the aim of meeting basic learning needs. The draft Framework for Action recommends 'increased and targeted external aid' for the LDCs in order to help them implement their own national action plans for establishing basic education for all. Among the other objectives set for the international community in this respect, the Framework for Action emphasizes the support that should be given to the LDCs as regards the general introduction of high quality primary education.

C. FUTURE ACTION

29. Some statistical information still to be confirmed seems to point to a moderate upward trend in enrolment rates in the LDCs after the stagnation or decline observed up to 1988. But even after confirmation, the figures would only give grounds for making somewhat less pessimistic forecasts. In any case, in a field like education where, more than in any other, the lost years are never recoverable, the work remaining to be done is immense and it is obvious that, for the foreseeable future, without massive outside help, the LDCs will be unable to make the effort required. This becomes even clearer when it is considered that the school-age population of the LDCs is likely to have increased by 50 per cent between 1985 and the year 2000. For the whole of the relevant population to be attending primary education by that date, there would have to be a threefold rise in enrolment, an increase whose pace would, in practice, be beyond the capacity of economies such as those of the LDCs to sustain.

30. Nothing of what has been said above, however, justifies any abandonment of the objective of basic education for all. On the other hand, it is right to say that clinging to this objective alone could be dangerous if, among other things, it were to mean the neglect, in the short and medium term, of immediate needs relating to technical and vocational training. This is equivalent to proposing a certain re-orientation in educational content and programmes, aiming to give greater importance to practical aspects that take account of both the socio-economic conditions in the country concerned and the traditional attitudes and values that could be the basis for progress towards the modernization that is needed. To put it another way, it would seem that the LDCs even more than other countries would stand to gain by steering their systems towards a more functional type of education. (It goes without saying that this applies to all levels including higher education where, at the moment, the majority of students set their sights - in the absence of any official discouragement - on law, literature and the fine arts, in all of which, chances of finding a job in the country itself are very slim and which therefore weigh heavily on the national budget). All the above highlights the need for more intensive planning and programming of education,

geared to the planning of economic and social development, so as to improve the match between education and real needs. More heed needs to be paid than in the past to the needs of the unstructured and traditional sectors, e.g. agriculture and crafts. This planning should also enable the increasingly frequent phenomena of exclusion to be avoided, namely the rejection of the products of the education system at various levels of that system and by society (e.g. the rural exodus of first level school-leavers who are not admitted to the second level and not reintegrated into active life in the family or village).

31. More generally, it has to be pointed out that, in spite of their gravity, not all the obstacles in the way of school for all are attributable to financial problems and that an essential contributory factor is the lack of suitability or 'relevance' of the education systems. This lack of suitability or relevance of the objectives, structures, content and methods of primary education results in a lack of interest in school that is particularly noticeable in the rural areas, the explanation for which is of a very practical nature - the realization that school does not always lead on to employment - though cultural considerations are also involved, for school is often perceived as an alien intrusion. Providing schools is no guarantee that children will attend them and what we are seeing is a real fall in the demand for education, particularly among people living in extreme poverty and facing a daily struggle for survival, for whom the acquisition of basic education - now that they are finding it to be non-relevant - has ceased to be a priority. So the overall strategy has to focus on the renovation as well as the expansion of basic education. The truth is that basic education has to be designed and planned as part of the general blueprint of lifelong education guaranteeing opportunities of access and success for all in accordance with personal aptitudes, and including formal and non-formal education, e.g. sandwich training alternating with employment and community development.

32. This having been said, the points made above in the review of the present situation of education in the LDCs can only conclude with a reminder of the following central thrusts around which continuing efforts need to be structured:

(a) the struggle against illiteracy backed by continued expansion of primary education with relevant curricula and by national adult literacy campaigns and programmes,

(b) the training of trainers and action to restore the value of the teaching function,

(c) action to improve the administrative and financial management of education and to make the utilization of the human, material and financial resources available more rational and efficient,

(d) action to identify and mobilize any additional resources that may exist at the national, provincial or local level. (A large number of measures to that end were considered by the meeting of experts on LDCs educational progress, needs and priorities that was held at Unesco Headquarters from 11 to 15 December 1989).

33. Success cannot reasonably be expected from any of these main lines of action, however great the sacrifices made by the LDCs themselves, without the mobilization of external resources to provide assistance on a large scale. This patent truth, which will be central to the work of the Conference on Education for All to be held in Thailand in March 1990, should also be on the agenda at the 1990 World Conference on the least developed countries.

Table 1 - Total expenditure on education in the least developed countries as a percentage of gross national product

	1970	1975	1980	LYA &
Afghanistan	1.1	1.5	2.0	...
Bangladesh	...	1.1	1.5 #	2.2 #
Benin	...	...	...	...
Bhutan	...	...	...	...
Botswana	5.2	8.5	7.1 #	7.7 #
Burkina Faso	...	2.5	2.6	2.5
Burundi	...	...	3.0	2.9
Cape Verde	...	...	...	3.2
Central African Republic	...	4.9	3.8	2.9 #
Chad	...	...	...	...
Comoros	9.0	...	...	6.5
Democratic Yemen	...	4.0	6.2	...
Djibouti	2.7	...	2.7	...
Equatorial Guinea	...	...	...	...
Ethiopia	2.1	3.3	3.3	4.2
Gambia	2.3	3.2	3.1	3.8
Guinea	...	...	...	3.3
Guinea-Bissau	...	...	...	3.7
Haiti	...	1.0	1.5	1.9
Kiribati	5.0	4.9	12.3	8.7
Lao People's Democratic Rep.	...	...	...	1.0
Lesotho	3.0	4.5	5.0	4.6
Malawi	4.6	2.4	3.3	3.3
Maldives	2.3	...	...	...
Mali	...	...	3.7	3.2
Mauritania	3.3	3.8	...	...
Mozambique	...	...	...	...
Myanmar	3.1	1.7	...	...
Nepal	0.6	1.5	1.8	2.8
Niger	1.2	2.4	3.1	...
Rwanda	2.3	2.3	2.7	3.5
Samoa	...	...	...	...
Sao Tome & Principe	...	...	8.0	...
Sierra Leone	3.2	3.4	3.8	...
Somalia	1.0	2.1	...	...
Sudan	3.9	5.5	4.8	...
Togo	2.2	3.5	5.6	5.1
Tuvalu	...	...	...	...
Uganda	3.9	2.5 #	1.2 #	3.9 #
United Republic of Tanzania	4.5	5.4	5.1	4.1
Vanuatu	...	...	...	...
Yemen	0.7	...	7.4	6.0

& Data for the latest year available.
# Data refer to expenditure of the Ministry of Education only.
Source: Unesco Office of Statistics.

Table 2 - Public expenditure on education, 1970-1987 (millions U.S. dollars - current market prices) and as a percentage of gross national product

Major Regions	1970		1975		1980		1985		1987	
	Millions US$	As % of GNP	Millions US$	As % of GNP	Millions US$	As % of GNP	Millions US$	As % of GNP	Millions US$	As % of GNP
World total	159,842	5.2	330,122	5.5	615,741	5.5	685,246	5.6	928,256	5.6
Africa	2,422	3.8	6,987	4.5	18,021	5.0	18,618	5.8	19,923	6.6
Latin America and the Caribbean	5,650	3.3	13,479	3.4	31,429	3.8	26,974	3.9	32,558	4.1
Northern America	71,830	6.5	113,288	6.4	201,780	6.7	293,278	6.7	338,104	6.9
Asia	13,933	3.1	46,466	4.3	102,955	4.5	117,513	4.4	177,010	4.5
Europe (incl. USSR)	64,145	5.1	143,079	5.7	251,351	5.5	218,524	5.5	347,565	5.5
Oceania	1,957	4.5	6,853	6.5	10,205	5.9	10,339	5.8	13,096	5.8
Arab States	1,799	4.8	8,440	5.9	17,969	4.4	23,757	6.2	26,745	6.6
Developed Countries	145,491	5.6	289,684	6.0	522,677	6.0	589,994	6.0	818,238	5.9
Developing Countries	14,351	2.9	40,438	3.5	93,064	3.8	95,302	4.0	110,018	4.1
Least Developed Countries	558	2.6	1,125	2.6	2,408	2.8	2,426	3.2	2,819	3.3

Data for the following countries are not included in the world total nor in the totals by region: Albania, Democratic Kampuchea, Democratic People's Republic of Korea, Lao People's Democratic Republic, Lebanon, Mongolia, Mozambique, South Africa and Viet-Nam.

Source: Unesco Office of Statistics, 1989.

TABLE 3 -ENROLMENT RATIOS BY LEVEL OF EDUCATION AND BY AGE-GROUP. BOTH SEXES (PERCENTAGES)

Region	Year	Adjusted Gross Enrolment Ratios			Enrolment Ratios by Age-Groups		
		1st level	2nd level	3rd level	6-11 years	12-17 years	18-23 years
World	1960	84.1	27.6	5.3	69.1	44.4	9.7
	1970	88.5	36.2	8.5	65.4	45.7	14.8
	1980	96.1	44.6	11.5	73.5	50.6	19.2
	1987	99.6	48.6	12.8	78.8	52.2	19.0
Developed Countries	1960	105.6	61.1	13.5	91.1	69.3	15.1
	1970	103.9	76.8	23.4	92.4	76.1	27.2
	1980	101.4	84.4	30.3	92.2	81.0	30.8
	1987	101.8	91.3	34.1	91.7	86.8	34.9
Developing Countries	1960	75.9	15.8	2.1	48.1	35.1	7.8
	1970	83.5	23.9	3.0	57.8	35.8	10.1
	1980	94.9	35.3	5.7	69.6	43.0	15.6
	1987	99.1	40.1	7.4	76.2	44.8	15.1
of which: Africa	1960	39.5	4.6	0.6	29.9	15.0	1.7
	1970	51.5	10.5	1.3	39.1	23.0	3.8
	1980	78.8	21.9	3.4	60.0	40.0	8.7
	1987	75.3	30.1	4.2	59.0	44.1	11.7
Latin America & Caribbean	1960	72.7	14.8	3.0	57.7	36.3	5.7
	1970	90.7	25.5	6.3	71.0	49.8	11.6
	1980	104.8	44.9	13.5	82.4	62.6	23.6
	1987	107.8	53.7	16.9	86.3	68.2	25.1
Asia & Pacific	1960	83.6	17.4	2.2	49.7	38.3	8.6
	1970	88.9	25.8	2.7	59.2	35.8	10.8
	1980	96.6	36.2	4.8	69.7	40.4	15.4
	1987	104.5	40.3	6.6	79.1	41.3	14.1
Least Developed Countries	1960	30.0	3.7	0.3	22.7	8.5	0.8
	1970	41.4	9.5	1.0	30.5	16.3	2.0
	1980	58.9	13.4	1.8	43.3	25.1	3.8
	1987	60.0	16.2	2.9	45.1	26.7	5.4
Arab States	1960	48.3	10.2	2.0	39.1	18.0	3.9
	1970	62.5	20.4	4.1	51.1	28.4	8.6
	1980	79.9	38.0	9.5	66.1	42.9	16.6
	1987	83.1	49.3	11.3	73.4	50.8	20.2

Source: Unesco Office of Statistics, 1989.

TABLE 4 - PERCENTAGE OF FEMALE ENROLMENT
BY LEVEL OF EDUCATION, 1960-1987

Region	Level of education	Percentage Female Enrolment		
		1960	1980	1987
World	Primary	42	45	45
	Secondary	42	43	43
	Higher	32	42	43
Developed countries	Primary	49	49	49
	Secondary	48	50	49
	Higher	35	48	49
Developing countries	Primary	39	44	45
	Secondary	34	39	40
	Higher	25	34	37
of which:				
Africa	Primary	35	43	44
	Secondary	26	35	36
	Higher	16	27	29
Latin America and Caribbean	Primary	48	49	48
	Secondary	47	50	51
	Higher	30	43	46
Asia and Pacific	Primary	38	43	44
	Secondary	32	38	39
	Higher	24	30	34
Least developed countries	Primary	32	39	42
	Secondary	17	30	35
	Higher	15	26	26
Arab States	Primary	34	41	43
	Secondary	26	37	41
	Higher	17	31	35

Source: Unesco Office of Statistics, 1989.

Table 5 - Illiteracy trends in population age 15 and over
(21 LDCs in Africa and 4 LDCs in Asia for which these data are, in part at least, available)

	1980	1985	Variation (down)	Variation (up)
I. AFRICA				
Benin	-	74.1	-	-
Burkina Faso	88.6	86.8	- 1.8	-
Cape Verde	56.2	-	-	-
Gambia	79.9	74.9	- 5	-
Guinea	75.9	71.7	- 4.2	-
Guinea-Bissau	81.1	68.6	-12.5	-
Mali	86.5	83.2	- 3.3	-
Niger	90.2	86.1	- 4.1	-
Sierra Leone	76.4	70.7	- 5.7	-
Togo	67.7	59.3	- 8.4	-
CENTRAL AFRICA				
Central African Republic	67	59.8	- 7.2	-
Chad	79.2	74.7	- 4.5	-
EAST AFRICA				
Burundi*	-	66.2	-	-
Ethiopia**	65	37.6	-27.4	-
Malawi	63.7	58.8	- 4.9	-
Mozambique	66.8	62	- 4.8	-
Uganda	47.7	42.7	- 5	-
Rwanda	-	53.4	-	-
Somalia	93.9	88.4	- 5.5	-
SOUTHERN AFRICA				
Botswana	38.9	29.2	- 9.7	-
Lesotho	30.2	26.4	- 3.8	-
II. ASIA				
Afghanistan	81.8	76.3	- 5.5	-
Bangladesh	70.8	66.9	- 3.9	-
Union of Myanmar	29.0	-	-	-
Lao PDR	-	74.4	-	-

* age 10 and over
** 1981-1983

Source: Unesco, Education and training policies in sub-Saharan Africa, Paris, 1987, page 21 and Unesco, Office of Statistics, Statistical reports and studies, No. 30, 1988.

SCIENCE AND TECHNOLOGY

General

1. Science and technology can help solve the problems of development in the LDCs as they can elsewhere but in the LDCs their use comes up against a number of specific difficulties. The main problem, and this takes us back to what has already been said with regard to education, is the vital need for manpower resources, i.e. qualified personnel enabling science and technology to be generated and managed as far as possible at the national level without systematic recourse to outside help. Unfortunately, the LDCs are even farther off than the other developing countries from having enough qualified personnel to establish locally the essential instrument that science and technology represent. There are two reasons for this: firstly, the proportion of skilled personnel per unit of population is by definition lower than elsewhere and secondly, population size itself is relatively small. This implies low capacities, in absolute terms, for firms that often require a critical mass of technical staff, regardless of the size of the population concerned.

2. This is apparent first and foremost in the vital sector of agriculture and food production, characterized in these countries by the low productivity of the traditional techniques which are often appropriate to the local physical and human environment but do not readily lend themselves to the adoption of intensive methods and increased production. In this field unfortunately, the shortage of management staff and technicians in agronomy and the advisory services is aggravated by the recurrent problems caused by the uncertainties of the climate (e.g. drought), soil deterioration, deforestation and often desertification.

3. The food self-sufficiency that would become possible through real agricultural development in countries with a threatened environment, would require an adequate number of agricultural instructors and centres for research and for the spread of techniques, without which market organization and commercialization cannot be rationalized. All these activities, however, depend on secondary and higher education, the organization of research and the inventorying of natural resources, and the LDCs' difficulties at all these levels are considerable.

4. The exploitation of the other natural resources - mineral, energy and water resources - faces similar difficulties: incomplete or non-existent inventories, the high cost of imported technologies, inadequate exploration and the shortage of skilled personnel. The energy situation is particularly serious because in those countries which have no fossil fuel resources, the traditional source of energy - wood - is apt to be overexploited and this aggravates such environmental problems as deforestation and desertification.

5. In LDCs that have set themselves industrialization as a goal, the difficulties faced are, once again:

- the severe weakness of indigenous scientific and technological potential,
- the fact that they have to import foreign technology even for the development of local resources by unsophisticated technological procedures,
- the problem of access to scientific and technical data,
- the absence or inadequacy of science and technology policies linked to the national development policy in general, the most serious difficulty being the problem of determining the content and nature of the research to be undertaken having regard to the slender resources available.

6. Unesco's work in the fields of science and technology is designed to promote international scientific cooperation and to help developing countries strengthen their scientific and technological capacities. (NB: an exhaustive account of Unesco action in all its different forms and with its many different objectives is impossible in this document in which only those aspects likely to be of specific interest to the LDCs will be covered.)

7. The principle is that of catalytic action aimed first and foremost at mobilizing the scientific community behind programmes and projects designed to meet the priority needs of its Member States in these fields. Particular emphasis has been placed on the setting up of scientific networks whose purpose is to stimulate exchanges among the scientific community and also to encourage the dissemination of knowledge and the transfer of technologies. In particular, these networks have been developed in the framework of intergovernmental programmes designed so as to enable research scientists in the developing countries to take an active part in their implementation, so that they are better able to profit from the findings that result.

8. Specific actions have also been launched to assist these countries, and in particular the least developed among them, to develop their scientific and technological capacities, firstly by ensuring that specialists can be trained and secondly by encouraging the creation and/or expansion of research and training institutions in various fields of science and technology, e.g. the fundamental sciences, engineering sciences, environmental sciences and the social and human sciences.

9. The Organization's activities in these fields have gained considerably in effectiveness from being based at the regional level. The LDCs in Africa and Asia are served to a large extent by Unesco's regional offices in Nairobi and New Delhi. As an example, during the last five years the Organization's programme on an integrated land-use system for improved agricultural production has benefited all the LDCs in Africa and 14 of them have taken part in the geological training programmes. In addition, 13 LDCs in Africa actively participated in and benefited from the training and research programmes of the African Network of Scientific and Technological Institutions (ANSTI). This participation by the LDCs in Unesco's science and technology activities will be augmented in the years to come.

Training and research

10. The training of adequate numbers of senior scientific and technical personnel is clearly an essential priority for the least developed countries in a world characterized by the quickening pace of scientific and technological progress but also by a probable aggravation of the inequalities in this field. There are various possibilities for the action to be taken: changes in the curricula with a view to the introduction or strengthening of the science and technology content in education at the different levels, improvements in teaching methods and techniques, adult education and technical and scientific extension courses and the use of the mass media. The object is to review existing training systems and methods so as to adapt to the rapid changes taking place in science and technology and to make the necessary choices of subjects to be taught and skills to be acquired in order to meet urgent needs, while taking specific social, cultural and economic conditions into account.

11. In this respect, the Organization is preparing a number of learning packages in key engineering disciplines, suitable for use with many different techniques, including computers, as well as in schools and for distance education. During the next six years, it is the Organization's intention to establish a number of so-called 'Unesco Chairs' in key multi-disciplinary areas such as nutrition and engineering. These Chairs, many of them to be set up in institutions in the LDCs, will

concentrate on the strengthening of local expertise for training and research activities. During the same period, Unesco will be going ahead with projects that include the setting up of production units for developing new industrial processes and products while at the same time contributing towards the training of technical personnel ready for immediate operational employment in industry. In addition, several continuous training courses in engineering will be run for technicians and engineers already working in industry.

12. Other Unesco programmes have concerned or will concern the LDCs, one example being in the field of physics and chemistry where special attention has been and will continue to be given to the design of high-quality, low-cost technical equipment suitable for local manufacture. Unesco has also played and will continue to play a part in the setting up of networks, such as the National Products Research Network for East and Central Africa (NAPRECA) whose aim is to end the isolation of scientists in the developing countries from mainstream research and training in their own and other regions.

13. During the 1990-1991 biennium, Unesco is launching a new international project to assist the developing countries, and first and foremost the LDCs, in improving the quality and effectiveness of introductory university courses in physics, chemistry and biology. The main motivation in this project is the fact that the teaching in most of these countries does not adequately cover key topics of modern, contemporary science and that insufficient importance is attached to experiments and student laboratory work.

14. The Intergovernmental Informatics Programme is another project designed to benefit the LDCs and help them develop their expertise in computer science and the maintenance of hardware. Through this programme, a number of Regional Centres have been set up to offer training in this sector and to facilitate the exchange of software among participating institutions.

15. In a general way, the changes that Unesco is encouraging are moves towards a type of education which does not neglect the acquisition of basic scientific knowledge but is less geared to the logic and compartmentation of disciplines and more centred on the bio-social subjects and problems that have so much significance for development and the quality of life. It thus encourages the acquisition of practical know-how and attitudes directed towards problem-solving, making allowance for ecological requirements and preparation for decision-making.

Environment and the management of natural resources

16. Since its creation, Unesco has endeavoured, through its international scientific cooperation programmes, to promote research on the natural resources of the world and those of the tropical regions in particular and periodically to take stock of current knowledge in this field. In 1956, when the Unesco's arid zone research programme was in full swing, a less ambitious programme of research on humid tropical zones was launched. This work showed, in addition to the usefulness of consolidating and circulating the findings of research carried out in different regions of the world on a wide variety of subjects, the value of integrated studies that permit an interdisciplinary survey of resource-development projects based on sound ecological knowledge. It demonstrated the essential connection between the findings of pure research and the requirements of land-use, in which human considerations are of vital importance.

17. A reconsideration of the relations between man and his environment and in particular the choice of an appropriate development approach that will not jeopardize the renewal of resources was the main idea underlying the adoption of Unesco's Intergovernmental Programme on Man and the Biosphere (MAB) in 1970. This

programme gives priority to the study of the functioning of the earth's ecosystems, i.e. arid land, forests in temperate, tropical and sub-tropical climates, mountain, coastal and island ecosystems and urban systems, with a view to their efficient management. In this regard, there are close links with the programme of the United Nations Environment Programme. Unesco's work in this field is of particular importance for the developing countries and the least developed countries in particular, since they are geographically situated in the main areas of implementation of the programmes, which include not only the MAB programme but also the Organization's other major intergovernmental scientific programmes: the International Geological Correlation Programme (IGCP) and the International Hydrological Programme (IHP). The pattern adopted for these major programmes has the advantage of promoting close cooperation between industrialized and developing countries, increasing the exchange of experience and providing for the training of specialists in the field and in institutes and centres of excellence.

18. In the framework of Unesco's Medium-Term Plan for the period 1990-1995, recently adopted by the General Conference at its twenty-fifth session, fresh momentum will be given to the intergovernmental programmes (IHP, MAB, IGCP and the projects of the Intergovernmental Oceanographic Commission - IOC): they will be set in the context of the global changes affecting the biosphere and in that of the 'sustainable development' concept that has emerged from the work of the Brundtland Commission on the environment and development and which, in fact, underlies the objectives of all these programmes relating to the environment. Among other things, it implies study of the interactions between man and the environment, taking the integrated and interdisciplinary approach that has been one of the main foundations of the MAB programme.

19. Connected with this programme on the environment and the management of natural resources there is a special project on environmental education and information. This project constitutes an essential tool for turning environmental research findings to good account because its object is to make those findings available to various types of user and, in particular, to integrate them in education and information programmes.

20. It needs to be pointed out that taking the global nature of environmental problems into account in no way means that their implications at the local and regional levels will cease to be considered. Quite the reverse is true. The MAB programme, for example, lays particular stress on the practical problems of land-use planning and the management, operation and conservation of natural resources, all of which are of maximum importance for the least developed countries in their need to improve the production potential of their natural environments so as to ensure the sustained growth of their agro-food production.

21. In Africa's case there are two projects of importance to the nine Member States of the Permanent Interstate Committee for Drought Control (CILSS) that should be mentioned. One is the training project in integrated pastoral management in the Sahel project (FAPIS) and the other, a project with the title 'Expansion of the scientific capacities of the Sahel countries in the agro-sylvo-pastoral sphere'. Between 1980 and 1989, FAPIS helped to train 112 senior personnel and to retrain 150 intermediate staff in natural resource management and integrated rural development, and encouraged the promotion of research, popularization and demonstration activities. The second project, which is just being launched, is intended to stimulate research programmes on integrated rural development and desertification control and to encourage the spread and application of the findings. Other objectives of the project are to improve the training of the researchers involved in the implementation of these programmes and to intensify regional cooperation among Member States of the CILSS in the fields concerned.

22. Similar schemes are being run in the humid tropical zones in order to develop basic scientific resources and to promote the training of the specialists needed for the conservation of the natural ecosystems and the genetic resources they contain and for the protection of the soil and the enhancement of its fertility in these areas.

Biotechnology and applied microbiology

23. The spectacular progress made in molecular and cell biology, genetics and biochemistry during the last two decades holds the promise of major applications in agriculture, medicine, pharmacy and various industrial processes, all of which are of particular value to LDCs, where the conditions for their use exist.

24. Taking account of the potential for the development of endogenous capacities, particularly in the LDCs, a major regional microbiology and applied biotechnology project was launched for Africa and the Arab States in the wake of the two conferences of ministers responsible for the application of science and technology to development in Africa (CASTAFRICA I, Dakar 1974 and CASTAFRICA II, Arusha 1987) and the UN Conference on Science and Technology for Development (UNCSTD, 1979). The strategy of this project is to develop the research potential and technological capacity already existing in these countries through promotion of scientific co-operation between existing local institutions and regional professional societies in the framework of regional networks of microbiological resources' centres (MIRCENs).

25. During its implementation between 1981 and 1988, this project concentrated on promoting high-value, low-cost technologies that would improve agricultural practices, create rural market economies and generate job opportunities, improved earnings and industrial markets in the urban sector. Fifteen short-term training courses were run, several of them in LDCs (e.g. Burundi, Gambia and Tanzania). Regional coordination meetings were organized by the Nairobi MIRCEN and were attended by micro-biologists from such LDCs as Malawi, Sudan, Uganda, Rwanda and Tanzania. The Bambey MIRCEN (Senegal) has already held two coordination meetings involving Burkina Faso, Gambia, Mali and Sierra Leone.

26. Existing microbiological resources centres (MIRCENs) are focussing their research and training activity on nitrogen fixation by biofertilizers, production of biological fertilizers, fermentation techniques, the recycling of biodegradable waste and the production of biogas. They also play a major role in post-university training and in the initiation and development of collections of economically important microbian strains.

27. Clearly, this field of activity, with such a wide range of complexity and therefore capable of application in widely differing scientific and technical development situations, is wholly appropriate to all the least developed countries.

Geology for development, mineral resources, energy

28. The drawing up of an inventory of the mineral resources of the developing countries is a prerequisite for their profitable utilization, and Unesco makes a considerable contribution to programmes for the training of the specialists - geologists and engineers - responsible for making the inventory and developing the resources. It also helps to promote research and training in the earth sciences through the implementation of the International Geological Correlation Programme (IGCP) and close collaboration with the International Union of Geological Sciences.

Of the 89 national committees participating in the IGCP, 11 belong to countries in the least developed category and 13 others have established regular contact with the Programme. The research and training activities focus on stratigraphy and geological correlation, the principal geological events and their consequences for the environment, the locating of mineral deposits and their origin, etc.

29. At the request of and in close cooperation with the secretariat of the West African Economic Community (CEAO), Unesco has also begun feasibility studies for the establishment of a subregional solar energy centre in Mali and a school of mining and geology in Niger, with subregional status. These two projects will prove the value of subregional cooperation in the construction of research and training infrastructures in a field that is important to economic development.

30. It has to be borne in mind that the Organization's activities in the energy field concern primarily the promotion and development of traditional and non-traditional sources of energy on a small scale for scattered rural populations: wood and coal, biomass and solar energy. In close cooperation with other organizations pursuing similar activities and with the countries concerned, Unesco is helping to organize subregional training seminars, courses and demonstration projects on the applications of energy-producing systems suitable for rural populations. The training of middle-level technicians and community leaders and the publication of popularization brochures and teaching materials are other activities in which Unesco is involved.

Rational utilization and conservation of water resources

31. The Unesco programme in the water sciences, through which the Organization makes its contribution to meeting the needs of the least developed countries, is centred around the International Hydrological Programme (IHP). The objectives of the IHP are (i) to carry out scientific programmes which will contribute to a better knowledge of the hydrological regime and serve as a basis for the utilization and integrated management of water resources, (ii) to produce national, regional and international training and information programmes as a contribution to the training of specialists needed for the development of water resources, and to bring out more clearly the importance of these resources for social and economic development and (iii) to strengthen institutional infrastructures in Member States in the sphere of water resources so that they can be managed rationally in accordance with the countries practical national development objectives, and to increase the attention paid to education and training with regard to water resources and the assistance given to Member States, at their request, in equipping themselves with the facilities they need to optimize the evaluation, development and conservation of their water resources. Missions have been sent to various countries, at Member States' request, to advise on the problems of water resources and projects have been drawn up for research and training at the national level in this field.

32. Two major regional projects on the rational utilization and conservation of water resources in rural areas have been drawn up for various regions including Africa and, in particular, the Sahel region. The object is to find the best ways of developing and conserving water resources so as to meet the economic and social needs of rural communities through projects that will help to build up endogenous scientific and technological potential, increase awareness among the population so that the public generally plays its part in the progress of research and the development of information networks, further the rational utilization of water resources by determining the most appropriate technological options in the given geographical and socio-economic context, and promote a water policy that will advance economic and social development.

33. Since water is essential to the success of rural development programmes, these projects are highly relevant to integrated rural development programmes, particularly in the least developed countries where the rural population accounts for a very high proportion of the total. When not already in existence, therefore, it is strongly recommended that national committees should be set up to coordinate IHP activities and those of these major regional projects in the countries concerned.

Integrated management of coastal ecosystems

34. A major interregional research and training project intended to lay the scientific foundations for the integrated management of coastal systems has been drawn up with financial assistance from UNDP. It in fact consists of a number of regional projects in the tropical and subtropical areas of Africa, the Arab States, Asia and the Pacific. Pilot projects run by research teams from the countries concerned are investigating the coastal ecosystems and the various processes that have to be understood to be able to manage coastal areas and their resources in accordance with the requirements of sustainable development. These pilot projects have three purposes: research, the application of research findings and the training of specialists. Since over half of the least developed countries, particularly in Africa, have a coastline, they are taking an active part in this major project and should derive considerable benefit from it.

Natural disasters

35. The fact that the least developed countries lie in the intertropical zone makes them particularly prone to recurrent natural disasters such as extreme drought, cyclones, floods and landslides. Those in mountainous areas are also subject to avalanches and earthquakes linked to movements of the earth's crust and recent tectonic phenomena. Such disasters aggravate environmental problems (desertification, soil erosion, deforestation and reduction of plant cover, and flooding) and have very serious effects on the fragile economies of developing countries. They destroy or imperil monuments and sites which are part of the cultural heritage not only of these countries but also of the world.

36. The Unesco programme makes provision for field studies on the effects of earthquakes, cooperation in operating the Tsunami Warning System in the Pacific and encouragement for research aimed at improving assessment and prevention connection with earthquakes, volcanic activity, avalanches and landslides. The studies carried out under the International Hydrological Programme contribute to flood prevention. The Organization's work is primarily concerned with the scientific side of these phenomena but it also includes assistance in various forms for studying the origins of disasters, the mechanisms involved, the damage they cause and ways of providing protection against them. It also includes the provision of technical and financial assistance to Member States whose cultural heritage is under threat. Lastly, the Organization also takes part in implementing programmes for the development and utilization of resources, which include measures to provide adequate protection against natural disasters.

Science and technology policies

37. The development of training and research activities, the exploitation of natural resources, environmental protection, the choice and adaptation of imported technologies and the integration of new technologies in vital sectors of the national economy (health, information and communication, food and energy) require thought to be given to the formulation of science and technology policies designed

to serve national priorities and economic and social development. Even for countries with very limited human and physical resources, objectives have to be set and choices made - in other words a policy has to be decided whose complexity will vary with the country's stage of development and the nature of the resources available. In this field, Unesco continues to pay priority attention to the help that needs to be given to the least developed countries, either directly or via the subregional groups to which they belong.

38. The type of assistance varies from country to country. Generally, however, it consists of advisory missions undertaken either by consultants or by staff members of the Organization. The services requested often relate to the setting up or strengthening of subregional S & T policy-making bodies, the surveying of national scientific and technological potential and the preparation of technical assistance projects. Over the last four years, advisory missions to the LDCs have accounted for over half of all Unesco resources spent on this kind of advisory service.

39. Some LDCs have also been supplied with equipment (office equipment and computers, for example) or financial assistance so that they can themselves organize seminars on subjects relating to the development of science and technology, sometimes with help from Unesco specialists. In countries undergoing structural adjustment, advantage is taken of the advisory services provided by Unesco to harmonize development in science and technology with development in other sectors.

40. Over the period 1990-1995, special attention will be paid to the development of human resources through the creation or strengthening in the LDCs of national training and research units in science and technology management to enable these countries to join existing or future regional networks so that they can make better use of the training opportunities offered by Unesco under its International Scheme for Training and Research relating to Scientific and Technological Development Policies.

SOCIAL SCIENCES

1. The complex problems encountered in managing the development process and, more particularly, in seeking remedies for the many severe handicaps with which the LDCs have to cope, demand an active contribution from the social sciences. However, it is important that this contribution should not come from outside and that the concepts and methods on which it is based should take the specific features of each country into account. In other words, social science practice should be internal to each of the societies concerned.

2. In the framework of the SNPA, Unesco set itself the following objectives:

- to promote a free and enlightened choice of type and style of development which should be the deliberate decision of the countries concerned after weighing up the relevant possibilities and constraints,

- to bring out the integrated aspects of equitable development (production, distribution, environment, population, socio-cultural factors) and to ensure they are taken into account in countries' voluntarily decided development plans,

- to involve the people - and young people in particular - in the choice, consideration and implementation of these solutions, and

- to increase regional cooperation for countries wishing to pool their research, capacities and resources but with full regard for their respective identities.

3. Activities since 1981 in social science research and in support for social science institutions have comprised technical and financial contributions to twenty such institutions in the LDCs with the object of intensifying national activities in the relevant disciplines.

4. As regards development planning and evaluation, a large number of activities and studies have been carried out for or with the participation of the LDCs, including training courses on development planning statistics, on evaluation methods and simulation models and on development planning concepts and methods.

5. The participation of women in development has been discussed at many meetings of experts, and Unesco has published studies on indicators of women's participation involving most of the LDCs. A great deal of work has been done on the identification of the institutional barriers that all too often prevent women from enjoying an equal share of education and training programmes and therefore from playing a full and effective part in the development activities of the community as a whole. Support has been given to research institutes carrying out inter-cultural studies on the changing role of women in the family and society which throw light on their role as the instruments of social change.

6. A large number of activities since 1981 have concerned the participation of young people in the development process in the LDCs. The work has taken many different forms: consultative missions for the preparation of national programmes, direct assistance for national projects, awards of study travel grants for heads of youth organizations, help in the organization of regional, sub-regional and national seminars, and studies and publications.

7. From 1982 to 1985, Unesco ran a major operational project financed by the United Nations Development Programme (UNDP) on economic planning in the Sahel countries. Teaching materials were designed and a one-month training course was held at Bamako in Mali attended by 86 development planning officials from Burkina Faso, Chad, Gambia, Mali, Mauritania and Niger. It was organized in collaboration with the Sahel Institute and covered methods for the use of socio-economic indicators in development planning and the planning and evaluation of human resources.

8. The field of future action by Unesco for the LDCs under the social sciences heading will be first and foremost in the area of studies on the effects of structural adjustment, the participation of women in development and the development of human resources, all within the framework of the Organization's Third Medium-Term Plan for the period 1990-1995.

9. The studies on the effects of structural adjustment in the fields of education, science and culture in the LDCs will be carried out in collaboration with the United Nations Economic Commission for Africa (ECA), the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), the African Development Bank and the Organization of African Unity (OAU) and also with the United Nations Development Programme (UNDP) and other organizations and bodies. The object will be to work out realistic approaches and strategies for managing the problems posed by structural development.

10. Unesco action will also be applied to the establishment of a network of research for the analysis of factors favouring women's participation in the development of human resources. A number of non-governmental research institutions and organizations will be involved in these activities.

11. With regard to the development of human resources in the LDCs, which are often unable to plan and run their own development projects, Unesco action will concentrate on the training of national officials responsible for the planning of human resources, education, science and culture. Studies will be made with a view to defining the role of human resources in sustainable development processes. Training courses will be held in the LDCs on the formulation of methods and strategies for the development of human resources. In the framework of the World Decade for Cultural Development, several projects will be aimed at the more intensive inclusion of socio-cultural factors in the preparation of development plans.

12. The phenomenon of the social exclusion of young people will be studied in depth and the formulation of national policies to facilitate the participation of youth in the development process will be encouraged. In addition, a project on youth and culture will be launched, involving the setting up of an international information service designed to improve the understanding of young people's problems by Member States, non-governmental organizations, teachers and the young themselves. The project will also strive to increase the ability of networks of institutions concerned with youth to exchange information on young people's problems and on innovative responses to those problems.

CULTURE

1. Culture, as the ultimate goal and essential instrument of any durable development process, must on both these counts be one of the concerns of decision-makers, whether they are those responsible for planning in the LDCs themselves or the officials administering international aid to these countries. For the same reasons, culture must be assigned the resources necessary for it to perform its role.

The cultural dimension of development

2. Although this patent truth is not always put into practice as it should be, few analysts now fail to recognize the importance of the cultural dimension of development. To disregard that dimension - and this has been all too often the case in the past - is to believe that development can be advanced whilst forgetting its essential aim, namely the fulfilment of the individual and the community. The fact is that the individuals and groups that are the object of development operations do not feel - and are not - involved in the implementation of those actions unless motivations of a cultural nature are called upon. So heed has to be paid to the local characteristics, attitudes and view of the world of the people concerned. Although the international community can and must provide the necessary help for the projects launched in the least developed and the other developing countries, development - as we now know - is only meaningful and effective if it is based on endogenous principles. For its part, Unesco has always striven to ensure that all its actions in its various fields of responsibility take full account of the cultural dimension of development.

'Cultural needs'

3. The imbalances typical of the LDCs are as serious in culture as in other fields. In most cases the means of action are minimal; as in many other countries, traditional cultures are in varying depths of crisis. Paradoxically, however, the slow pace of economic change (industrialization, urbanization, transport and communications) has allowed family and community structures, beliefs and opinions, ways of life and modes of production inherited sometimes from the very distant past - in short the cultural traditions of these countries - to be preserved more easily, relatively speaking, here than in other countries. It may be thought that this persistence has played a major part in the conservation of the vital equilibria enabling these societies - weak though they be in terms of economic growth - to survive by holding on to the main features of their cultural identity as the cement of the community's cohesion whilst at the same time retaining the local and regional differences that are so rich in significance for themselves and the groups of which they are composed. It is therefore important to attempt to fit continuity and change for these societies into the workings of their own inner forces, something that economic reality rarely favours.

4. To take just one example, there is the persistent and mounting crisis in the craft-based trades: escalating prices of raw materials and products, shrinking traditional markets, gradual disappearance of essential basic production materials, poor quality products (commercialization due to mass tourism being a major cause) and the waning interest of young people in these difficult and unremunerative occupations. Here, therefore, what would be necessary is first to improve the terms on which raw materials can be bought and products sold and, second, to train the young in these trades, giving the associated advantage of creating jobs in sectors of endemic unemployment, e.g. those in which women specialize such as domestic crafts, pottery, weaving, carpet-making, etc.

5. The Unesco actions more particularly concerned with the LDCs that have been planned and implemented since the first United Nations Conference on these countries, have all taken careful account of the above problems and obstacles.

6. With regard to creation and creativity, studies have been made on the measures to be taken for craft-based trades and on the markets for artistic and literary works. The reactivation of popular arts has been encouraged and equipment has been supplied to centres of artistic activity. Assistance has been given for the training of artists and craftsmen in traditional genres. A start has been made on instituting a system for the protection of national creative works.

7. As regards the protection of the cultural heritage, encouragement has continued to be given for inventories and research designed to preserve and increase the value of the physical and non-physical heritage, including the oral tradition (e.g. the study of African languages). Policies have been formulated and implemented for safeguarding and making the most of the cultural heritage. Support for the development of museums and heritage personnel has continued, as has action to help bring about the return of cultural property to its countries of origin.

8. In the field of the knowledge of cultures, the promotion of national and local languages and the study of cultural values - particularly those of which women are the repository and which they are instrumental in perpetuating - has continued. Interactions between cultures and technical and industrial development have been studied. The translation, publication and broadcasting of works from cultures that are too little known has continued.

9. Cultural development and cultural policy is a vast field in which action has embraced many aspects:

- studies and experiments on incorporating cultural factors and effects in development plans, programmes and projects (particularly at local level);

- research and experimental activities on participation by the general public (particularly women, the young and the elderly), in cultural life;

- formulation, implementation and evaluation of cultural development policies and projects tailored to people's needs and wishes (this includes the cultural industries);

- training of cultural development personnel - in particular by creating new or expanding existing training centres and schemes in the developing countries;

- support for giving cultural aspects more weight in North-South and South-South cooperation.

10. As regards the development of books and reading, efforts have been made to build up capacities for producing, publishing and distributing books, among other things by training personnel and creating conditions that make reading easier (reading materials in local languages and the encouragement of reading among women, children and rural people).

11. All these actions need to be continued in the future, both in the field of cultural development (encouraging endogenous creativity and cultural industries, developing universal participation in cultural life particularly among women, the young and the most disadvantaged groups) and in preserving the cultural heritage and promoting better-balanced cultural exchange and trade, the object being the universal appreciation of all cultures.

12. Specific and complex national and international action on copyright will be needed in favour of the LDCs so that the accent is no longer exclusively on facilitating access to foreign works but also on the institution of an effective system for protecting national works and favouring endogenous creativity and on the intensification of relations between intellectual creation, development and copyright.

13. It should be noted that the LDCs are very much concerned by all the activities prompted by the World Decade for Cultural Development (1988-1997), proclaimed by the United Nations General Assembly at its 41st Session. This has two main objectives: to give the cultural dimension more specific consideration and to stimulate creative aptitudes and cultural life in general.

COMMUNICATION

1. The vast growth in modern communication media throughout the world has been a prominent feature of the last two decades. The telephone, radio and television, though only recent arrivals on the scene, are now commonplace, and even newer techniques like data communication systems and satellite broadcasting are developing at a very rapid rate. In most cases, however, communications and communication media, like development itself, mirror the inequalities and disparities that exist between countries and regions, the rich and the poor, some living in an overabundance of communication resources and others suffering from various degrees of insufficiency in this respect, whereas the need to associate everyone in the development effort would dictate the continuous and intensive use of communication there.

2. A study of certain indicators showing trends for the most common communication media between 1960 and 1987 shows how serious the insufficiencies affecting the LDCs are. As regards daily newspapers, for example (Table 1) it can be seen that one quarter of the 42 countries have none and that circulation does not exceed one copy per 200 people in 40 per cent of the LDCs. Average circulation for all the developing countries put together is six to seven times what it is for the LDCs. As regards the consumption of paper (Table 2) in terms of kilogrammes per inhabitant, for which fewer data are available, the situation for the LDCs within the group of all the developing countries is the same as for the circulation of daily newspapers.

3. The figures in Tables 3 and 4 for radio and TV receivers per thousand inhabitants are largely estimates. Even so, they show how far behind the LDCs are within the Third World. A point worth noting is that Table 4 only concerns 33 out of the 42 LDCs, which tends to suggest that nine LDCs have no TV broadcasting system at all as yet.

4. The LDCs needs in the way of communication media are therefore extremely acute, a fact that Unesco has constantly striven to bring to public notice. Since 1980 in particular, aid to these countries under this heading has been a priority, given the importance that the media undoubtedly possess in achieving economic, social and cultural development.

5. Unesco's work has focussed on:

- the formulation and implementation of policies and plans for the development of communication,
- the development of research and documentation,
- increased exchanges of news and programmes,
- the provision of appropriate equipment and the domestic production of equipment, and
- the basic and further training of all communication personnel, with greater involvement of women.

6. To attain these objectives with maximum efficiency, evaluating and preparatory missions have been carried out in order to produce projects in harmony with the national development of the countries concerned. These projects cover assistance for the setting up of media distribution infrastructures, the development of low-cost technologies, including studies on the technical components of communication systems that could be locally produced, endogenous production and the training of human resources.

7. In current projects, the accent is on the development of news agencies, national, rural and educational radio systems and community newspapers. The latter are a way of providing training and information, opening a dialogue between rural people and the centres of social, economic and cultural decision-making and therefore promoting participation by the people in the various activities of socio-economic development. In addition, efforts are being made to increase the number of candidates in these countries for local training, priority thus being given to the strengthening of national and regional training centres.

8. The International Programme for the Development of Communication (IPDC), initiated by the General Conference of Unesco in 1980, provides considerable support for action in this field. Since the Programme was launched, the Intergovernmental Council of the IPDC has approved the financing of over sixty national projects in which LDCs are concerned. Between 1984 and 1988, IPDC grants have been made to 172 nationals of LDCs.

9. At the 19th meeting of the Bureau of the IPDC Council in October 1988, as a first step in the process of reviewing the Programme's procedures and working methods and in order to enhance the efficiency and impact of the projects it finances, it was decided that, in the choice of projects to be submitted to the Council at its tenth session, priority would be given to national projects in the LDCs. The proposal was ratified by the Council which, in March 1989, approved the financing of 11 national projects from LDCs totalling 1,035,000 US dollars.

10. Looking forward to the medium and long term future, there is an inescapable need for the least developed countries to be able to gather, collate and use the data of every kind - economic, social, cultural and technical - that they have to have in order to decide on their development objectives and how to implement them. Unfortunately, there are several fields, e.g. the inventorying of underground resources, where such data are non-existent or are only available outside the country concerned. The preparation and distribution of statistics are also impeded for lack of the necessary human and technical resources. More generally, decision-makers do not have the means and instruments that would enable them to monitor, accurately and quickly enough, the changes taking place in the sectors for which they are responsible.

11. The importance of access to and use of information in all aspects of economic and social life has been the concern of Unesco for many years. While developed countries have invested considerable resources to deal with information problems, it appears that developing countries, and more particularly LDCs, are especially disadvantaged in this respect. Under a 'transverse programme', the new Medium-Term Plan of Unesco for 1990-1995 will concentrate on technological change and the use of new information technologies on the one hand and, on the other, on the use of information for decision-making. The strategy adopted will be to reinforce regional mechanisms. Some LDCs will receive assistance in this context. Other LDCs will receive direct assistance in areas such as the training of information specialists or the development of information policies. Special mention should be made of the major efforts undertaken to strengthen information infrastructures within operational activities. Many LDCs have benefited from Unesco assistance and it is expected that this area of action will be considered more and more important by these countries in the near future.

TABLE 1 - DAILY NEWSPAPERS: ESTIMATED CIRCULATION PER 1,000 INHABITANTS

COUNTRY	CIRCULATION PER 1,000 INHABITANTS			
	1960	1970	1980	1987
AFGHANISTAN	5	7	5	5
BANGLADESH	-	-	5	7
BENIN	2	1	0.4	0.3
BHUTAN	-	-	-	-
BOTSWANA	-	21	20	16
BURKINA FASO	0.3	0.3	0.2	0.4
BURUNDI	-	0.1	0.4	0.5
CAPE VERDE	-	-	-	-
CENTRAL AFRICAN REPUBLIC	-	-	-	-
CHAD	0.2	0.2	0.2	0.2
COMOROS	-	-	-	-
DEMOCRATIC YEMEN	5	7	7	6
DJIBOUTI	-	-	-	-
EQUATORIAL GUINEA	4	4	4	4
ETHIOPIA	1	1	1	1
GAMBIA	5	5	6	6
GUINEA	0.2	1	4	2
GUINEA-BISSAU	2	5	8	7
HAITI	11	9	6	8
KIRIBATI	-	-	-	-
LAO PEOPLE'S DEMOCRATIC REPUBLIC	3	4	4	4
LESOTHO	-	12	16	22
MALAWI	-	2	2	2
MALDIVES	-	5	7	8
MALI	0.4	0.5	0.6	0.6
MAURITANIA	-	-	-	-
MOZAMBIQUE	3	6	4	6
MYANMAR	11	11	10	12
NEPAL	0.8	3	8	8
NIGER	0.3	0.3	0.6	1
RWANDA	-	0.0	0.1	0.1
SAMOA	-	-	-	-
SAO TOME AND PRINCIPE	-	-	-	-
SIERRA LEONE	6	8	3	3
SOMALIA	-	1	1	1
SUDAN	...	...	...	...
TANZANIA	3	4	4	4
TOGO	2	2	3	4
TUVALU	-	-	-	-
UGANDA	8	8	2	2
VANUATU	-	-	-	-
YEMEN	10	12	13	15
AVERAGE CIRCULATION FOR LDC'S	4.6	5.0	4.5	5.4
ALL DEVELOPING COUNTRIES	...	32	35	35

TABLE 2. CONSUMPTION OF NEWSPRINT AND OF OTHER PRINTING AND WRITING PAPER
(KILOGRAMMES PER 1,000 INHABITANTS)

COUNTRY PAYS PAIS	NEWSPRINT PAPIER JOURNAL PAPEL DE PERIODICO				OTHER PRINTING AND WRITING PAPER AUTRE PAPIER D'IMPRESSION ET D'ECRITURE OTRO PAPEL DE IMPRENTA Y DE ESCRIBIR			
	1960	1970	1980	1987	1960	1970	1980	1987
AFGHANISTAN			6			29	31	39
BANGLADESH		540	215	280		480	295	522
BENIN			29	23			29	116
MYANMAR	506	587	118	89	235	446	444	618
BURUNDI								80
CENTRAL AFRICAN REPUBLIC						107		
CHAD							45	19
DEMOCRATIC YEMEN	41		269	132		267	538	132
ETHIOPIA		29	52	39		29	95	333
GUINEA-BISSAU			123	216				
HAITI	*56	156	55	65	27	67	111	195
LAO PEOPLE'S DEMOCRATIC REP.	18	111	62			147	156	
MALAWI		44	99	66		553	1 593	79
MALI		35					28	35
MOZAMBIQUE		21	124	7			331	7
NEPAL				73				
NIGER			19	77			19	62
RWANDA								61
SAMOA		1 399				2 098		606
SIERRA LEONE	89	75	61	52	45	75		26
SOMALIA		136	37	15		27	243	15
SUDAN	81	195	80	100	161	267	385	130
UGANDA	61	102	15	12	76	265	38	24
UNITED REP. OF TANZANIA	30	111	186	102	90	377	371	172
AVERAGE FOR LDC'S.	223	310	124	135	153	311	275	308
ALL DEVELOPING COUNTRIES		900	1 200	900		1 100	1 900	1 500

TABLE 3 - RADIO BROADCASTING: ESTIMATED NUMBER OF RECEIVERS PER 1,000 INHABITANTS

COUNTRY	NUMBER OF RECEIVERS PER 1,000 INHABITANTS			
	1960	1970	1980	1987
AFGHANISTAN	2	42	75	102
BANGLADESH	-	-	20	40
BENIN	12	31	66	75
BHUTAN	-	3	6	15
BOTSWANA	4	32	100	130
BURKINA FASO	1	16	17	24
BURUNDI	-	19	37	56
CAPE VERDE	9	17	139	152
CENTRAL AFRICAN REPUBLIC	9	25	52	60
CHAD	2	123	168	237
COMOROS	2	88	112	112
DEMOCRATIC YEMEN	54	56	63	154
DJIBOUTI	-	-	69	89
EQUATORIAL GUINEA	-	100	250	251
ETHIOPIA	-	15	77	193
GAMBIA	5	108	114	146
GUINEA	-	21	25	33
GUINEA-BISSAU	4	8	31	38
HAITI	6	17	19	41
KIRIBATI	4	100	195	204
LAO PEOPLE'S DEMOCRATIC REPUBLIC	-	18	109	123
LESOTHO	4	5	22	68
MALAWI	-	23	45	197
MALDIVES	-	11	45	106
MALI	2	11	15	37
MAURITANIA	13	45	97	139
MOZAMBIQUE	6	10	25	38
MYANMAR	5	15	23	79
NEPAL	-	5	20	31
NIGER	-	35	47	62
RWANDA	-	8	29	54
SAMOA	28	161	206	429
SAO TOME AND PRINCIPE	-	81	259	280
SIERRA LEONE	4	15	138	216
SOMALIA	11	14	21	38
SUDAN	-	50	187	229
TOGO	4	20	176	178
TUVALU	-	-	-	250
UGANDA	12	18	30	96
UNITED REPUBLIC OF TANZANIA	2	11	27	16
VANUATU	13	120	197	207
YEMEN	-	-	18	34
AVERAGE FOR LDC'S	6	14	40	86
ALL DEVELOPING COUNTRIES	...	43	94	171

TABLE 4 - TELEVISION BROADCASTING: ESTIMATED NUMBER OF RECEIVERS PER 1,000 INHABITANTS

COUNTRY	NUMBER OF RECEIVERS PER 1,000 INHABITANTS			
	1960	1970	1980	1987
AFGHANISTAN	-	-	2.8	7.9
BANGLADESH	-	-	0.9	3.3
BENIN	-	-	1.4	3.9
BOTSWANA	-	-	-	6.9
BURKINA FASO	-	1.1	3.0	4.8
BURUNDI	-	-	-	0.2
CENTRAL AFRICAN REPUBLIC	-	-	0.3	2.2
CHAD	-	-	0.7	0.9
COMOROS	-	-	-	0.2
DEMOCRATIC YEMEN	-	14	19	21
DJIBOUTI	-	6	17	48
EQUATORIAL GUINEA	-	-	2.8	5.9
ETHIOPIA	-	0.3	0.8	1.6
GUINEA	-	-	1.1	1.6
HAITI	0.5	2.4	3.0	4.2
LAO PEOPLE'S DEMOCRATIC REPUBLIC	-	-	-	1.5
LESOTHO	-	-	-	0.7
MALDIVES	-	-	7.1	20
MALI	-	-	-	0.2
MAURITANIA	-	-	-	0.8
MOZAMBIQUE	-	-	0.1	0.9
MYANMAR	-	-	0.0	1.3
NEPAL	-	-	-	1.4
NIGER	-	-	0.9	2.6
SAMOA	-	-	16	34
SIERRA LEONE	-	1.1	6.1	8.6
SOMALIA	-	-	-	0.4
SUDAN	-	3.2	43	52
TOGO	-	-	3.9	5.4
UGANDA	-	3.0	5.6	6.3
UNITED REPUBLIC OF TANZANIA	-	0.3	0.4	0.6
VANUATU	-	-	-	7
YEMEN	-	-	0.8	7.5
AVERAGE FOR LDC'S	0.5	1.6	4.0	5.9
ALL DEVELOPING COUNTRIES	...	8.7	22.9	41.7